

Amendments to the Specification:

Please substitute the paragraph starting at page 1, line 22 and ending at page 2, line 3 with the following replacement paragraph.

a1  
--Also, from an ecological point of view, it becomes an important task to obviate wasted material, i.e., to reduce the amount of consumable products, to postpone a service life of the consumable material and to enhance reliability. Also, the digitalization has been accelerated from the conventional analog apparatus. Thus, it also becomes an important task to reduce the cost of the body to the same level of the analog apparatus ~~machine~~ or less.

Please substitute the paragraph starting at page 3, line 5 and ending at page 3, line 16 with the following replacement paragraph.

a2  
--For this reason, various approaches have been conventionally proposed as a cleaning means for the image bearing bodies. ~~In Such a system that~~ the above-described system, residual toner is scraped by cleaning blades made of elastic material such as urethane rubber is in practical use because of being simple in structure, compact in size, and low in cost and superior in its toner-removing ~~a toner removing~~ function. In general, urethane rubber that is very highly hard, abundant in elasticity and excellent in wear-resistant property, mechanical strength, oil-resistant property, and ozone-resistant property is used as the rubber material for the cleaning blades--

Please substitute the paragraph starting at page 4, line 26 and ending at page 5, line 22 with the following replacement paragraph.

--By the above-described ~~above-described~~ measures although the service life of the image bearing body is prolonged by the above-described method, inversely, the image bearing body is difficult to abrade. Accordingly, there is a fear that the adhesives adhered to the above-described image bearing body surface could not be scraped so that bonding or filming occurs to cause the image fault disadvantageously. Accordingly, changing the external adding method of the toner, the amount of the external additives that have the polishing effect is to be increased so that the surface of the above-described image bearing body is polished by means of the external additives interposed between the cleaning blade and the surface. Otherwise, in order to enhance the scraping ability of the cleaning blade per se, the coating layer made of material having a low frictional coefficient is provided on the surface of the blade. According to this blade, it is possible to perform the cleaning operation without fluttering ~~fluttering~~ (abnormal vibration) or curling ~~curl~~ of the blade, and in addition, the blade edge is very highly hard. Accordingly, it is possible to obtain an effect of effectively removing the adhesives adhered to the surface of the image bearing body and of suppressing the bonding or filming.

Please substitute the paragraph starting at page 12, line 12 and ending at page 12, line 19 with the following replacement paragraph.

--Reference numeral 32 denotes a separating charger for separating the recording sheet P that has been conveyed along the transfer belt 130 3. Reference numeral 9 denotes a fixing device for fixing the toner ~~transfer~~ image transferred to the recording sheet P and has a fixing roller 51 having therein a heating means such as a heater and a pressure roller 52 to be brought into contact with the fixing roller 51.

Please substitute the paragraphs starting at page 12, line 23 and ending at page 13, line 14 with the following replacement paragraphs.

ab -- In the example of this image forming apparatus, the bearing and conveying means for bearing and conveying the recording medium material is composed of the above-described belt drive roller 13, the transfer belt 130, the drive motor (not shown), the registration rollers 7 and the conveying guide 12.

A The charging means for charging the image bearing body 3a, 3b, 3c and 3d is composed of the above-described primary charger 2a, 2b, 2c and 2d, an assistant charger (not shown) and the like.

A The toner image forming means for forming the toner image on the image bearing body 3a, 3b, 3c and 3d is composed of the above-described developing device 1a, 1b, 1c, 1d, laser beam scanner (not shown), the assistant charger (not shown) and the like.

A The means for transferring the toner image to the recording medium material held on the bearing and conveying means is composed of the above-described transfer charger 24a, 24b, 24c and 24d.

The cleaning means 4a, 4b, 4c and 4d for cleaning the image bearing body 3a, 3b, 3c and 3d is the above-described cleaning apparatus.

Please substitute the paragraphs starting at page 14, line 1 and ending at page 15, line 8 with the following replacement paragraphs.

ab cont. -- On the other hand, the recording sheet P received in the cassette 10 is fed and its skew is corrected by means of the pair of registration rollers 7 that have been stopped temporarily. Thereafter, the recording sheet P is conveyed onto the transfer belt 130 taking

Alb  
for

timing with the toner image formed on the above-described photosensitive drum 3a. The recording sheet P that has been fed to the transfer belt 130 is subjected to the transfer charge by means of the transfer charger 24a in the transfer portion of the image forming portion Pa so that the toner image is transferred to the recording sheet P. The above-described steps are performed also in the image forming portions Pb, Pc and Pd in the same manner so that the toner image of the magenta color, the toner image of the yellow color and the toner image of the cyan color are sequentially transferred onto the recording sheet P.

The recording sheet P that has been subjected to the image transfer is separated by means of the transfer belt 130 while being subjected to an ~~the~~ AC bias removal by the separating charger 32 in the left end portion of the transfer belt 130 and is conveyed to the fixing device 9. Then, the recording sheet P that has been subjected to the image fixation by the above-described fixing device 9 is discharged to a discharge tray 63 outside the apparatus.

Incidentally, the maximum image width in the electrophotographic copying machine according to this embodiment is about 290 mm in the lateral side of A4, and the drum peripheral velocity is 200 mm/sec. As an example of the structure of the photosensitive photoelectric drum, the drum has a conductive base member, a charge generating layer coated thereon, a charge transporting layer formed thereon and a mold separating layer further formed thereon and containing Teflon.

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Please substitute the paragraph starting at page 19, line 11 and ending at page 20, line 1 with the following replacement paragraph.

am  
--In the apparatus according to the present invention, it is preferable that the toner receiving means be a sheet structure provided at a position where the toner scraped by the blade drops because the structure becomes simple. It is preferable that the sheet structure (hereinafter referred to as a toner receiving sheet) be made of resin because it is light in weight. In particular, it is more preferable that the toner receiving sheet be made of polyurethane or PET. The toner receiving sheet structure is not particularly limited as long as the sheet may receive the dropping toner. It is however preferable to use the toner receiving sheet installed in a direction for contacting in the forward direction of the rotational direction of the drum. The thickness of the toner receiving sheet is not particularly limited. It is sufficient to keep a thickness having such strength that its function may be performed.

Please substitute the paragraph starting at page 20, line 16 and ending at page 21, line 5 with the following replacement paragraph.

WPL  
8-28-03  
as  
cmi:  
--In Fig. 5, a gear 78 coupled with a drive gear of a developing sleeve rotates in synchronism with the rotation of the developing sleeve. In this case, a gear 79 rotates in synchronism with the gear 78 and a reciprocating cam 77 coupled with the gear 79 rotates. The reciprocating cam 77 has a fan ~~fun~~ shape having an angle and the <sup>fan</sup>~~fun~~ portion is installed under the condition that it is engaged with a U-shaped member of a cam follower 76. Accordingly, the cam follower 76 and a swing shaft 80 provided with the cam follower 76 swing right and left at a constant cycle in synchronism with the rotation of the reciprocating cam 77. Then, the blade mounting metal plate M mounted on a member fixed to the swing shaft 80 and a mounting metal plate K move together with the swing shaft 80.

ag end In accordance with this movement, the cleaning blade C and the toner scraping member B  
move together.

Please substitute the paragraph starting at page 24, line 17 and ending at page 25,  
line 4 with the following replacement paragraph.

129 --The fixing device 9 is composed of the fixing roller 51, the pressure roller 52,  
heat-resistant cleaning members 54, 55 for cleaning these rollers, roller heating heaters 56,  
57 provided within the rollers 51, 52, a coating roller 50 for coating the fixing roller 51  
with mold separating oil such as dimethyl silicone oil, an oil pan 53 therefor, and a  
thermistor 58 for detecting a temperature of the surface of the pressure roller 52 to thereby  
control the fixing temperature. In the recording material (recording sheet) P to which the  
four color toner images have been transferred, the mixture of colors of the toner images  
and the fixing to the recording material (recording sheet) P are performed by this fixing  
device 9 to thereby form a full color copy image.

Please substitute the paragraph starting at page 27, line 10 and ending at page 27,  
line 20 with the following replacement paragraph.

910 Cont. --In this case, it is preferable to use a synthetic resin having a viscosity or synthetic  
rubber as a material for the brush G. For example, it is possible to use one or the mixture of  
plural materials selected from the group consisting of polyvinyl ethyl ether, polyvinyl  
methyl ether, polyvinyl isobutyl ether, polyisobutylene, butyl rubber, chloroprene rubber,  
styrene-butadiene rubber (SBR), rubber chloride, cyclization rubber, vinyl chloride-vinyl

A 10  
2nd acetate copolymer, polymethacryl acid, polyacrylic ester, ethylene-vinyl acetate  
copolymer, and polyvinyl butyral.

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Please substitute the paragraph starting at page 28, line 2 and ending at page 28, line 24 with the following replacement paragraph.

--As shown in Fig. 6, in the above-described image forming apparatus, the sheets made of polyurethane were arranged as the toner receiving means for receiving the toner scraped off by the blades on the upstream side in the image bearing body rotational direction of the cleaning blades in the forward direction in the drum rotational direction. By using the cleaning apparatus having the cleaning structure in which the brush made of polyvinyl ethyl ether is attached as the scraping member for scraping the toner stacked on the toner receiving sheet, an actual copying test of 50,000 of sheets was conducted by copying with an image covered rate of 10% at a room temperature and normal moisture circumstance one by one. The image obtained at the 50,000<sup>th</sup> copy was visually observed and evaluated. As shown in Fig. 4, the above-described brush was located in a position where the brush never interferes with the image bearing body in the cleaner opening portion and is rotated so as to move in the opposite direction to the moving direction of the image bearing body whereby the toner scraped off by the cleaning blade blades was prevented from stacking on the above-described toner receiving sheet.

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Please substitute the paragraph starting at page 29, line 10 and ending at page 30, line 3 with the following replacement paragraph.

Q12  
--As a comparison with Embodiments 1 and 2, in the above-described image forming apparatus, the sheets made of polyurethane were arranged as the toner receiving means for receiving the toner scraped off by the blade on the upstream side in the image bearing body rotational direction of the cleaning blade blades but the scraping member was not provided in the cleaning apparatus container. Under this condition, an actual copying test of 50,000 ~~of~~ sheets was conducted by copying with an image covered rate of 10% at a room temperature and normal moisture circumstance one-by-one ~~one by one~~. The image obtained was visually observed and evaluated. In this case, the image fault occurred at about the 30,000<sup>th</sup> copy. The toner scraped by the cleaning blade blades was tightly stacked on the toner receiving sheet. The stacked sheet reached the blade edge portions. The external additives having a small particle size excessively resided in the above-described cleaning blade nip. The external additives were pushed against the image bearing body to generate a relatively remarkable flaw in the image bearing body.

Please substitute the paragraphs starting at page 30, line 23 and ending at page 32, line 10 with the following replacement paragraphs.

Q12 Cont  
--In order to rotate the image bearing body in the reverse direction, it is possible to provide a specialized motor, but it is possible to provide an electric circuit for rotating in the reverse direction a motor for rotating the image bearing body upon the formation of the image. Alternatively, it is possible to cause the motor per se to rotate in the forward direction and ~~but~~ to obtain the reverse rotation by gears. Also, it is possible to provide a controlling means for determining the rearward rotation and switching the rotational



direction to the reverse direction. The number of reverse rotations is not particularly limited, but it is sufficient to set the number to several times (3 to 4 times).

Alb  
End

In the above-described image forming apparatus, the sheets made of polyurethane were arranged as toner receiving means for receiving the toner scraped off by the blade on the upstream side in the image bearing body rotational direction of the cleaning blade. The controlling means 100 is provided as toner removing means for making it possible to rotate the motor for rotating the image bearing body to rotate in the reverse direction which is provided with a sequence for rotating the image bearing body in the reverse direction two to four times upon the rearward rotation of the image bearing body after the formation of the image. Under this condition, an actual copying test of 50,000 of sheets was conducted by copying with an image covered rate of 10% at a room temperature and a normal moisture circumstance one by one. The image obtained at the 50,000<sup>th</sup> copy was visually observed and evaluated. With such a structure, the toner residing on the toner receiving sheet was popped by force in the gravitational direction given by the reverse rotation performed during the rearward rotation and the minute vibrations generated at that time and then pushed toward the deep portion of the cleaning apparatus container. Accordingly, the toner was no longer stacked in the vicinity of the cleaning blade nip, and the additives were no longer excessively clamped in the nip to cause the excessive damage of the surface of the image bearing body. The 50,000<sup>th</sup> outputted image was also good.

Please substitute the paragraph starting at page 33, line 4 and ending at page 34, line 7 with the following replacement paragraph.

Q14  
In the above-described image forming apparatus, the sheets made of polyurethane were arranged as the toner receiving means for receiving the toner scraped off by the blade on the upstream side in the image bearing body rotational direction of the cleaning blade. The control means 100 has as a toner removing means such a sequence that the strip-shaped toner image is formed on the image bearing body over the full width of the image region in the main scanning direction about a center of the image bearing body upon the rearward rotation of the image bearing body and such an image is not transferred to reach the cleaning blade. Under this condition, an actual copying test of 50,000 sheets was conducted by copying with an image covered rate of 10% at a room temperature and normal moisture circumstance one by one. The image obtained at the 50,000<sup>th</sup> copy was visually observed and evaluated. The strip-shaped image was 290 mm wide (in the longitudinal direction of the image bearing body) and 50 mm long (in the moving direction of the image bearing body). With such an arrangement, the toner residing on the toner receiving sheet and kept under the packed condition in the vicinity of the nip portion is broken and caused to fall by supplying the new toner to the nip portion vicinity at once by the strip-shaped toner image in the full width in the main scanning direction formed upon the above-described rearward rotation. Accordingly, there was no phenomenon that the external additives were clamped in the nip to excessively damage the surface of the image bearing body. The image obtained at the 50,000<sup>th</sup> copy was also good.